(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 255 324**
A3

D6

(12) **EUROPEAN PATENT APPLICATION**

(21) Application number: **87306625.2**

(51) Int. Cl.⁴: **A63B 53/02**

(22) Date of filing: **27.07.87**

(30) Priority: **26.07.86 GB 8618300**

(43) Date of publication of application:
03.02.88 Bulletin 88/05

(84) Designated Contracting States:
DE FR SE

(88) Date of deferred publication of the search report:
19.10.88 Bulletin 88/42

(71) Applicant: **Wilson Sporting Goods Company Limited**
Brent House 950 Great West Road
Brentford Middlesex TW8 9ES(GB)

(72) Inventor: **Swash,Harold**
8 Hastings Road, Birkdale
Southport, Merseyside,PR8 2LS(GB)

(74) Representative: **Cardwell, Stuart Martin et al**
Roystons Tower Building Water Street
Liverpool, Merseyside L3 1BA(GB)

(54) Golf clubs.

(57) A golf club head (3) and shaft (1) connection to provide a feel different from that provided by the all steel golf club wherein a material different from that of the head and shaft is interposed there between. The material is in the form of a ferrule (2, 12) of plastics material having a spigot formation (2A, 12A) at one end to fit a socketed golf club head (3,13), and a deep socket or through-bore at or from its other end to take a golf club shaft (1,11) then capable of extending into said spigot formation. In one embodiment the shaft is accommodated wholly in the ferrule, in another the end of the shaft extends through the ferrule and is received in a bore 15 in the golf club head.

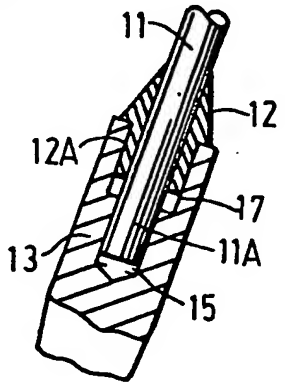

FIG.2

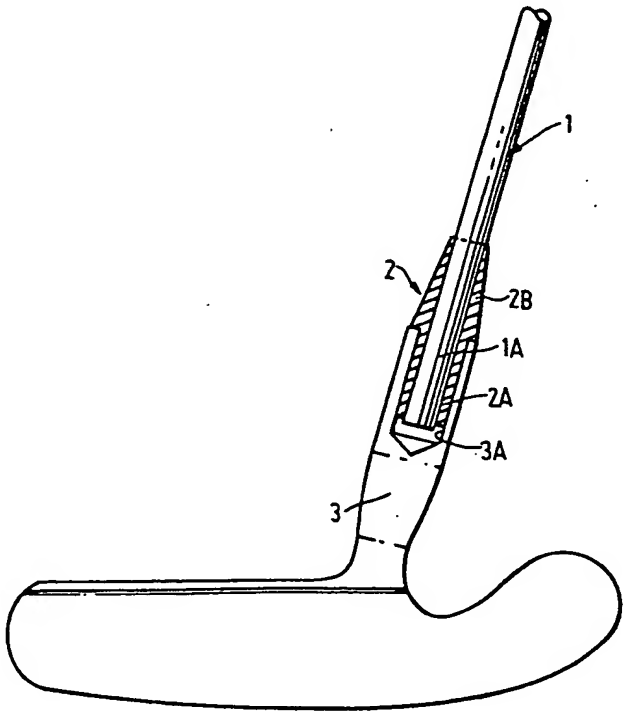

FIG.1

EP 0 255 324 A3

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 255 324 A2**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **87306625.2**

(51) Int. Cl.[4]: **A63B 53/02**

(22) Date of filing: **27.07.87**

(30) Priority: **26.07.86 GB 8618300**

(43) Date of publication of application:
03.02.88 Bulletin 88/05

(84) Designated Contracting States:
DE FR SE

(71) Applicant: **Wilson Sporting Goods Company Limited**
Brent House 950 Great West Road
Brentford Middlesex TW8 9ES(GB)

(72) Inventor: **Swash,Harold**
8 Hastings Road, Birkdale
Southport, Merseyside,PR8 2LS(GB)

(74) Representative: **Cardwell, Stuart Martin et al**
Roystons Tower Building Water Street
Liverpool, Merseyside L3 1BA(GB)

(54) Golf clubs.

(57) A golf club head and shaft connection to provide a feel different from that provided by the all steel golf club wherein a material different from that of the head and shaft is interposed there between. The material is in the form of a ferrule 2, 12 of plastics material having a spigot formation 2A, 12A at one end to fit a socketed golf club head 3,13, and a deep socket or through-bore at or from its other end to take a golf club shaft 1,11 then capable of extending into said spigot formation. In one embodiment the shaft is accommodated wholly in the ferrule, in another the end of the shaft extends through the ferrule and is received in a bore 15 in the golf club head.

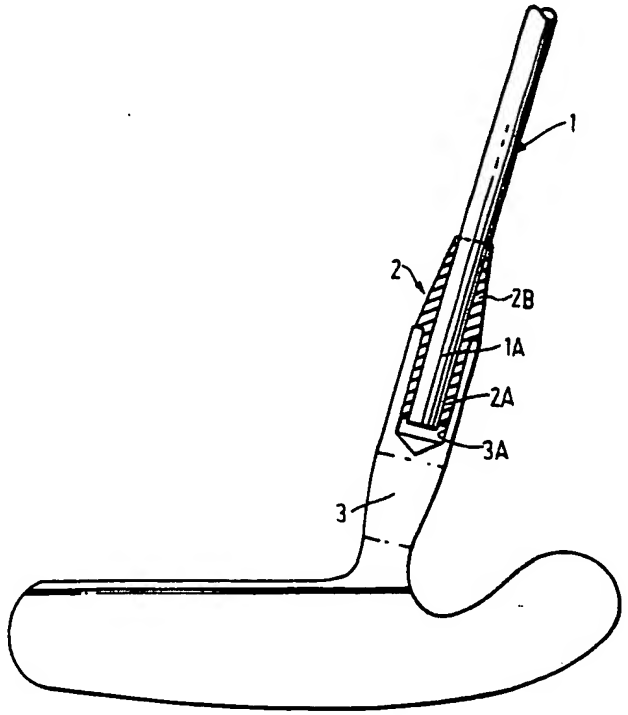

FIG.1

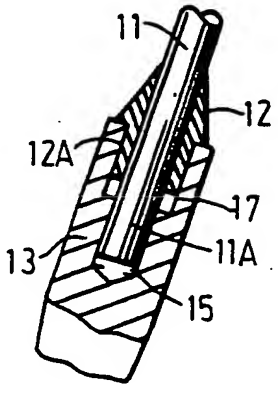

FIG.2

EP 0 255 324 A2

Golf Clubs

The invention relates to golf clubs with particular but not necessarily exclusive application to putters.

These days, most golf clubs, including putters, have steel shafts, indeed are usually of all-steel construction. At least for putters, however, some golfers still prefer a wooden shaft for its different feel when striking a golf ball. Given such preferences, it is believed to be useful to seek, if possible, to provide other ways of adjusting or altering the feel from that of the conventional all-steel golf club.

Accordingly, it is an object of this invention to provide a construction of golf club affording such possibilities.

Accordingly, in one aspect, this invention provides for connection of a golf club head and shaft which connection includes interposed material different from that of the shaft and that of the head, typically as a ferrule reinforced by extension of the shaft and surrounding said material into a socket of the head.

In one embodiment, the interposed material/ferrule forms direct interconnection between the shaft and the head and is the only means of interconnection other than adhesive means used in conunction therewith, whereas in another preferred embodiment, an end portion of the shaft is received in a bore in the head, preferably secured therein by adhesive means, whilst the interposed material/ferrule is disposed around the shaft spaced from the said end portion and adjacent the opening to the head.

Ferrules of plastics material are readily moulded to the required shape and can provide required strength and other physical characteristics. A nylon based material interposed and/or connecting a steel shaft gives the feel of a much softer strike of the golf ball in a way that should be much appreciated by many golfers. By the above means variation of feel on strike of the ball is achieved by the cushioning effect of the nylon bush.

Another aspect of this invention concerns the ferrule itself as a body with a spigot formation at one end to fit a socketed golf club head and a deep socket or through-bore at or from its other end to take a golf club shaft, then capable of extending into said spigot formation.

The present invention will now be described further, by way of example only, with reference to the accompanying diagrammatic drawings; in which;-

Figure 1 shows a shaft 1 joined to a putter head 3 by a ferrule 2 shown partly in section according to one embodiment, and

Figure 2 shows joint between a shaft 11 and a putter head 13 according to another embodiment.

Referring firstly to Figure 1, the shaft 1 is conveniently of conventional tubular steel construction and the hed 3 can also be of steel. The ferrule 2 is of nylon-based material and accommodates extension 1A of the shaft 1 thereinto, actually therethrough as shown.

End 2A of the body of the ferrule 2 is of spigot formation entrant a socket 3A of the putter head 3. The other end 2B of the body of the ferrule 2 which takes the tubular steel shaft 1 right into the head socket 2A is shown tapered, and may be so to whatever transitional shape is required or desired.

The ferrule material constituting the socket 2A is, of course, sandwiched between the shaft extension 1A and the head socket 3A in a construction of inherently high structural integrity, but offering a modification of "feel" dependent on the material of the ferrule 2 and whether or not same is compressed, if so, to what degree.

It will be evident that the material for the ferrule body must serve to secure the head and the shaft but, whether or not with further provision for improving interlocation of parts, can provide a useful range of variation of its cushioning effect.

Referring now to Figure 2, a shaft 11 conveniently of tubular steel construction is shown jointed to a head 13 which can also be of steel. The head 13 has a stepped diameter blind bore formed therein with stepped parts 15, 17, the latter being of larger diameter than the former.

Disposed around the shaft 11 is a ferrule 12 which is of plastics material such s nylon-based material. End 12A of the ferrule 12 is of spigot formation and received in stepped part 17 of said bore in the putter head. An end portion 11A of the shaft 11 is received in the bore 15 for joining the shaft 11 to the head. Epoxy resin or other adhesive means is conveniently used to form the connection, although other fixing techniques may be employed.

By locating the end 11A of the shaft 11 in the head and interposing the ferrule 12 between the shaft and the end opening of the bore 17 in the head the desired variation of feel on striking the ball is achieved by virtue of the cushioning effect of the ferrule. It will be appreciated that the resilience of the shaft allows flexing thereof, which flexing is cushioned by the ferrule. Positive retention of the head to the shaft is assured with the embodiment of Figure 2, whilst a thinner diameter shaft can also be utilised.

Claims

1. A golf club head and shaft connection characterised by interposed material (2, 12) different from that of the shaft (1, 11) and the head (3, 13) as a ferrule reinforced by extension of the shaft and surrounding said material into a socket (3A, 17) of the head.

2. A connection as claimed in claim 1 in which the interposed material/ferrule (2, 12) forms direct interconnection between the shaft (1) and the head (3) and is the only means of interconnection other than optional adhesive means used in conjunction therewith.

3. A connection as claimed in claim 1 in which an end portion (11A) of the shaft is received in a bore (15) in the head (13) whilst the interposed material/ferrule (12) is disposed around the shaft spaced from said end portion and adjacent the opening to the head.

4. A connection as claimed in claim 3 in which the shaft (11) is secured in said bore (15) in the head by adhesive means.

5. A connection as claimed in any one of claims 1 to 4 in which the interposed material/ferrule is of plastics material.

6. A connection as claimed in claim 5 in which the plastics material is a nylon.

7. A ferrule for use in connection of a golf club head (1, 11) and shaft (3, 13) comprising a body with a spigot formation (2A, 12A) at one end to fit a socketed golf head (3A, 17) and a deep socket or through bore at or from its other end to take a golf club shaft then capable of extending into said spigot formation.

8. A putter having a connection between the putter head (3, 13) and the shaft (1, 11) comprising interposed material different from that of the shaft and the head.

9. A putter as claimed in claim 8 in which the interposed material comprises a ferrule (2, 12) reinforced by extension of the shaft and surrounded by a socket (3A) in the head.

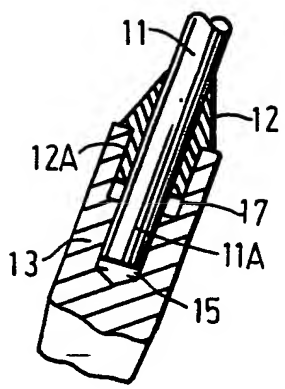

FIG.2

FIG.1

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 87 30 6625

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	GB-A- 217 126 (D.W. FLINT) * claims 1-3, figures 2,3 *	1,2,7-9	A 63 B 53/02
A	---	3-6	
X	GB-A- 384 390 (J.M. CUNNINGHAM) * page 1, line 84 - page 2, line 1; claim 1; figures 1,2 *	1,2,7-9	
A	---	3-6	
X	US-A-4 063 737 (LEUNG CHONG TOM et al.) * claims 1-3,5; figures 1-5 *	1,2,4,5,7-9	
A	---		
A	DE-C- 620 437 (A. SCHUMACHER) * lines 13-18, claim; figures *	3-6	
A	---		
A	US-A-2 066 442 (C. WRIGHT) * claims 1,3,4; figure 2 *	1-3,5,7-9	
A	---		
A	DE-A-1 939 371 (BRUNSWICK CORP.) * claims 1,7; figure 4 *	1,5,7,8	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
A	---		
A	US-A-1 844 812 (S.T. THORPE) * claim 1; figures 2,3 *	1-3,7,9	A 63 B 49/00 A 63 B 53/00

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	23-07-1988	MICHELS N.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P0401)